

REMARKS

Upon entry of the instant amendment, claims 1-4, 6-9, 11, 12, 15-18 and 20 remain pending in the above-identified application and stand ready for further action on the merits.

In this Amendment, claims 2, 3 and 8 have been amended to delete the aspect ratio previously recited therein.

Accordingly, the present amendments to the claims do not introduce new matter into the application as originally filed. As such entry of the instant amendment and favorable action on the merits is earnestly solicited at present.

Claim Rejection under 35 U.S.C. § 112, 2nd Paragraph

Claims 2-4 and 8-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 3 and 8 have been amended in a fashion that is submitted to obviate and overcome the instant rejection. In this regard, the rejected claims as instantly amended particularly and distinctly set forth the inventive discovery that the Applicants regard as their own. The statute requires no more. Accordingly, reconsideration and withdraw of the outstanding rejection is required at present.

Claim Rejection under 35 U.S.C. § 103(a)

Claims 1-4, 6-9, 11, 12, 15-18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Satoh et al. US'047** (US 2002/0055047 A1) as evidenced by **Takami et al. US'387** (US 5,753,587).

Reconsideration and withdraw of the outstanding rejection is required at present based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

M.P.E.P. § 2141 sets forth the guidelines in determining obviousness. First, the USPTO has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the USPTO has to provide some rationale for determining obviousness. MPEP § 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Exemplary rationales that may support a conclusion of obviousness include:

- (a) *combining prior art elements according to known methods to yield predictable results;*
- (b) *simple substitution of one known element for another to obtain predictable results;*
- (c) *use of known technique to improve similar devices (methods, or products) in the same way;*

- (d) *applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;*
- (e) *“obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success*
- (f) *known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;*
- (g) *some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.*

As the M.P.E.P. directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. See M.P.E.P. § 2143.03.

Distinctions over the Cited Art

Carbon black may include so-called amorphous carbon, and **Satoh et al. US'047** may suggest that carbonaceous material B is amorphous carbon. However, the carbon black used according to the present invention is not the same as the carbonaceous material of **Satoh et al. US'047**, and it may not be obviously selected based on the disclosure of **Satoh et al. US'047**.

According to **Satoh et al. US'047**, its carbonaceous material B is prepared by heat-treating a carbonaceous material precursor such as a thermosetting resin, an isotropic pitch, etc., at a temperature of 900°C or less (*e.g., see paragraph [0095] of Satoh et al. US'047 which is reproduced below for the USPTO ease of review*).

[0095] It is possible to obtain carbonaceous material B by applying a heat treatment at 900° C. or less to a carbonaceous material precursor. The carbonaceous material precursor used in the present invention includes, for example, a thermosetting resin, an isotropic pitch, mesophase pitch, a mesophase pitch-based carbon fiber, and mesophase pitch-based microbeads. Particularly, it is desirable to use mesophase pitch, a mesophase pitch-based carbon fiber, and mesophase pitch-based microbeads as the carbonaceous material precursor. It is more desirable for the heat treatment noted above to be performed at 600 to 900° C. If the heat treatment is performed under the temperature noted above, it is possible to obtain carbonaceous material B having a relatively high absorption-desorption amount of lithium ions and having a low reactivity with GBL. It is furthermore desirable for the heat treatment to be performed at 650 to 850° C.

In contrast to **Satoh US'047**, the carbon black used in the present invention is prepared by pyrolyzing or incompletely combusting a raw material such as oil or natural gas as a raw material according to a conventional method. In this regard, the USPTO's attention is directed to various conventional methods of manufacturing carbon black that are disclosed at <http://www.carbonblack.jp/en/cb/seizou.html> as follows:

Manufacturing Process of Carbon Black

Classification of carbon black by manufacturing process

Carbon black is produced with the thermal decomposition method or the partial combustion method using hydrocarbons such as oil or natural gas as raw material.

The characteristics of carbon black vary depending on manufacturing process, and therefore carbon black is classified by manufacturing process. Carbon black produced with the furnace process, which is the most commonly used method now, is called "furnace black," distinguishing it from carbon black, which is manufactured with other processes.

Furnace Black Process

This method forms carbon black by blowing petroleum oil or coal oil as raw material (feedstock oil) into high-temperature gases to combust them partially. This method is suitable for mass production due to its high yield, and allows wide control over its properties such as particle size or structure. This is currently the most common method used for manufacturing carbon black for various applications from rubber reinforcement to coloring.

Channel Process

This method forms carbon black by bringing partially combusted fuel, which is generated with natural gas as raw material, into contact with channel steel (H-shaped steel) and then collecting the carbon black which results.

There are yield and environment issues around this method, and therefore has lost the leading role as the mass production process to the furnace process. This method, however, provides carbon black with many functional groups on the surface, being used in some painting applications.

Acetylene Black Process

This process obtains carbon black by thermally decomposing acetylene gas. It provides carbon black with higher structures and higher crystallinity, and is mainly used for electric conductive agents.

Lampblack Process

This method obtains carbon black by collecting soot from fumes generated by burning oils or pine wood.

This method has been used since the days before Christ, and is not suitable for mass production. However, it is used as raw material for ink sticks as it provides carbon black with specific color.

Accordingly, it is submitted that those skilled in the art readily know and realize that carbon black has greatly different properties depending on its preparation methods.

Similarly, it is submitted that those of ordinary skill in the art would never conclude that the specific carbon blacks used in the present invention (*e.g., see claim 1*) are the same as carbonaceous material B of **Satoh et al. US'047**, nor would they conclude that the specific carbon blacks recited in the present claims are obvious based on the disclosure of **Satoh US'047**.

Accordingly, based on the above considerations, it is submitted that the present invention as claimed is in no way rendered obvious from **Satoh et al. US'047** in view of **Takami et al. US'387**. In this regard, no disclosure or other teaching is provided in the cited art of **Satoh et al. US'047** or **Takami et al. US'387**, that would provide those of ordinary skill in the art with any reason or rationale to arrive at the instant invention as claimed.

Any contentions of the USPTO to the contrary are respectfully requested to be reconsidered at present.

Provisional Examiner Interview Request

Should the instant reply not result in an allowance of each of pending claims 1-4, 6-9, 11, 12, 15-18 and 20 currently under consideration, the Examiner is respectfully requested to contact Mr. John W. Bailey (Reg. No. 32,881) in the Washington D.C. area at 703-205-8031, in order to schedule a personal interview at the Examiner's earliest convenience. It is submitted that such an interview would be valuable in helping to further prosecution of the instant application towards issuance of a Notice of Allowance, or alternatively, to further clarity and/or simplify outstanding issues for purposes of a future Appeal to the USPTO Board of Patent Appeals and Interferences.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims 1-4, 6-9, 11, 12, 15-18 and 20 is allowable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey, Reg. No. 32,881 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application..

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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